

Technical Description

LJU Automatisierungstechnik GmbH

PU-5.41

Power Pickup



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The standard names, trade names, product names etc. used in this description may also be brand names even when not specially indicated and, as such, are subject to the statutory stipulations.

Translation of the original document

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1 General Information

1.1 Information about the Technical Description

This technical description contains technical information about power pickup of the type Floor:

PU-5.41

It gives important information about the device.

Please read this technical description carefully before using the device!

It will ensure smooth operation and prevention of errors, defects and damage to the system. Moreover, universal safety and accident prevention specifications must be implemented at sites where the devices are in use.

The technical description includes important instructions regarding the operation and safety; it is a part of the product and must be readily available, close to the device, so that it is accessible to the personnel at all times.

Every person who is assigned to work on or with the device must have read and understood this technical description before working with the device. This is mandatory even if the concerned person has already worked with such a device or the like, or has been trained by the manufacturer.

1.2 Symbols in the Documentation

There are warnings and symbols in this technical description. It is absolutely mandatory to comply with them and follow them. These are working aids and they will warn you of possible damage to property and personnel. Always follow these instructions. Moreover, always follow the universal safety specifications and accident prevention specifications.



Danger!

This symbol along with the signal word “Danger” refers to an imminent dangerous situation that can cause serious injuries or fatality, if it is not avoided.



Danger to life due to electric current!

This symbol along with the signal word “Danger to life due to electric current” refers to an imminent dangerous situation by electrical current that can cause serious injuries or fatality, if it is not avoided.



Warning!

This symbol along with the signal word “Warning” refers to a potentially dangerous situation that can lead to serious injuries or fatality if it is not avoided.



Caution!

This symbol along with the signal word “Caution” refers to a potentially dangerous situation that can lead to minor injuries and damage to property if it is not avoided.



Note!

This symbol indicates that there are additional and important information and tips on the relevant topic.



See also!

This symbol indicates that other detailed descriptions on the particular topic are available or provides references to other sections in this documentation.

1.3 Limitation of Liability

All data and information in this technical description have been compiled, taking into consideration, the applicable standards and specifications, the state-of-the-art technology and our knowledge and experience gained over the years.

LJU Automatisierungstechnik GmbH is not liable for any damage or operational disorders arising due to:

- Non-compliance with the technical description
- Improper use
- Employment of untrained personnel
- Independent remodeling and modification of the device

Moreover, non-compliance of the technical description absolves LJU Automatisierungstechnik GmbH of the warranty obligation.

1.4 Copyright

The contents of this technical description should be treated as confidential. It is meant solely for persons working with the device. Handing over this technical document to third parties without written permission of the manufacturer is not allowed.



Note!

The content details, texts, drawings, images and other illustrations of the technical description are protected by copyright and are subject to the industrial property rights. Any improper utilization is punishable by law.

1.5 Conformity

Devices made by LJU Automatisierungstechnik GmbH have been designed to comply with EU directives.

Please contact LJU Automatisierungstechnik GmbH if you wish to obtain a copy of these EU declarations of conformity.

1.6 Proper Use

The power pickup is a device for industrial and commercial systems for power supply to consumer loads in inductive systems.



Warning!

Danger due to improper use!

Any improper use and/or different use of the power pickup can lead to dangerous situations.

Therefore:

- *Use the power pickup only for the intended purpose according to the specification.*
- *Under all circumstances, comply with all the technical data and the permissible conditions at the site of operation.*
- *Do not deploy the power pickup in areas with explosion hazard.*
- *Do not operate the power pickup in environments with hazardous oils, acids, gases, vapors, dust, radiation, etc.*

1.7 Spare Parts and Repair



Warning!

Risk of injury due to spurious spare parts and incorrect repair!

Spurious or faulty spare parts and repair can lead to damage, malfunctions or total failure and can impair safety.

Therefore:

- *Use only original spare parts of the manufacturer.*
- *Replace defective devices immediately and send them in for repair.*

When **ordering a spare part**, specify the item number **WNR** of the component and send it to the address given on the inner side of the covering sheet (page 2). The item number is given on the type plate of the individual components.

Send in the defective device for **repair** with a short description of the error scenario to the address given on the inner side of the covering sheet (page 2).

1.8 Disposal Instructions/Environmental Specifications

Dispose of the device according to applicable provisions.

The device comprises electric and electronic components. Separate and dispose of them according to applicable provisions.

Follow the hazardous materials directive, in particular the regulations on handling hazardous materials.



Dispose of materials designated for recycling or plastic recycling as per the respective recycling procedure.

1.9 Warranty

The warranty covers only manufacturing defects and component defects.

The manufacturer is in no way responsible for damage during transit or unpacking.

In no case and under no circumstances shall the manufacturer be liable under warranty for defects or damage caused by improper use, incorrect installation or impermissible operating conditions, or due to dust or aggressive substances.

Consequential and accidental damage are excluded from the warranty.

The warranty is valid for 12 months from the commencement of operation, however, maximum 24 months after delivery.

Resellers or distributors may negotiate different warranty periods in accordance with their terms and conditions of sale and delivery.

If you have further questions relating to the warranty, please contact your supplier.

1.10 Customer Service

Our service is available to provide technical information.

Information about the responsible contact persons can be obtained via telephone, fax, e-mail or the Internet; see contacts on the inner side of the covering sheet (page 2).

1.11 Modifications and Alterations

To avoid danger and to ensure optimal performance, no modifications, remodeling or add-ons are allowed on the device unless expressly approved by LJU Automatisierungstechnik GmbH.



Warning!

Risk of injury due to design modification!

Unauthorized technical modifications can lead to considerable damage to persons and property.

Therefore:

- *Replace the defective device!*
- *Replace it with an LJU device of the same model.*

1.12 Personnel and Qualification



Warning!

Risk of injury due to inadequate qualification!

Inappropriate handling can lead to considerable damage to persons and property.

Therefore:

- *The installation, operation and maintenance of the device must be carried out by trained and instructed personnel.*

2 Safety

**Danger to life due to electric current!**

Contact with live parts is fatal.

Removal of lid/covering and incorrect installation can lead to fatality.

Therefore:

- Test the power pickup regularly. Loose connections, damaged cables and insulations, and any damage that may risk safety must be immediately eliminated. Contact-protection measures that are defective have to be repaired immediately.
- Any work on the power pickup may be carried out only by a trained electrician according to the rules of electrical technology.
- When work is being carried out on the power pickup, disconnect the power loop from the power supply and prevent accidental reconnection.
- Only insulated tools must be used.
- Do not pull out the plug when it is live!

**Danger to life due to electric current!**

Especially the DC link in the power pickup can be live even after the power loop is switched off. Any work on the power pickup must therefore be carried out only after discharging the DC link (wait time after disconnection of the power supply min. 5 min)!

**Danger!****Danger to life from electromagnetic fields!**

The induction technology, especially the power loop, produces electromagnetic fields. Electromagnetic fields can affect and interfere with pacemakers and defibrillators.

Therefore:

- If you carry a pacemaker, keep sufficient clearance from the power loop.
- Inform persons with pacemakers about the danger before they get close to the power loop.
- Do not use any defibrillators near the power loop.

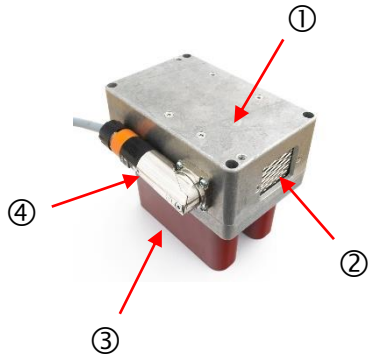
**Warning!****Hot surfaces, risk of burns!**

The power pickup can get heated to high temperatures during operation.

3 Design and Function

3.1 Design

The power pickup is designed as compact device and consists mainly of:



- ① Housing with DC link and internal control electronics
- ② Ventilation grille on front and rear side
- ③ Coil combination - modelled as open transformer, cast in PUR
- ④ Electrical connection, led out of the housing with industrial plug connector

3.2 Function

The system generates electrical energy according to the induction principle, similar to the primary/secondary transmission of a transformer.

The transformer comprises a primary and secondary coil on a common, closed ferromagnetic core. This causes a high degree of coupling, however does not allow any relative motion of the two coils between each other.

For energy transmission of the used inductive system, the primary coil is “stretched” to a long conductor loop, i.e. the power loop. The secondary coil is fitted through the open ferromagnetic core in the power pickup, which almost envelopes the conductor loop. In this way, a relative motion of the two coils between each other is enabled.

The power pickup with its coil arrangement (open transformer) and a controlling device connected internally on the load side, draws power from the magnetic field of the power loop and thus supplies the required direct voltage to the connected device.

4 Mounting and Electrical Connection

4.1 Notes on Safety and Assembly



Danger due to electric current!

The power pickup is fitted close to the power-loop. Contact with live parts is fatal. The impermissible removal of lid/covering can lead to fatality.

Therefore:

- *Do not open covering/lid during operation.*
- *When work is being carried out on the power pickup, disconnect the power loop from the power supply and prevent accidental reconnection.*
- *Do not pull out the plug when it is live!*



Caution!

The pickup can be heated during operation.

Therefore:

- *Fit the pickup in such a way that sufficient air circulation and heat dissipation is ensured.*

4.2 Installation

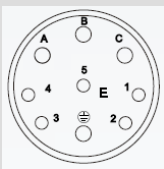


Notice the device drawing in chapter 5.2!

- Fit the power pickup only at the fastening points.
- Align the power pickup parallel and centered to the cable holder sections.
- Ensure embedding depth of the cable holder sections in the pickup!
- Maintain steel-free areas! Avoid steel parts in the vicinity!

4.3 Electrical Connection

- The power pickup is electrically connected to the consumer load using a high flexible industrial cable.
 2 x 1.5 mm² recommend.
- Connect the power pickup to the provided inputs on the consumer loads.

Connection	Pin Assignment
Receptacle angled [9-pin socket]  view on the socket	A DC link ZW+ (500...560 VDC) C DC link ZW- B n.c. 1-5 n.c. PE n.c.
Note: The appropriate plug with quick lock and connecting cable (length approx. 1 m) will be supplied.	
cable assignment: conductor 1 ZW+ conductor 2 ZW-	

5 Technical Data

5.1 Data Sheet

General information

Type	PU-5.41
WNR	LJU-60062545
Material	Aluminum die-casting / PUR
Dimensions W x H x D with plug	125 mm x 109 mm x 80 mm 125 mm x 109 mm x 111 mm
Weight	approx. 1.5 kg
Protection class	IP 20
Mounting clearances	embedding depth of the power loop: 20 mm
Cooling	Passively via ventilation grilles
Environmental conditions	Environmental temperature range: 10 °C to + 40 °C Storage temperature range: - 10 °C to + 50 °C Relative humidity: < 80% non-condensing

Electrical information

Power supply	inductive constant current 30 A / 20 kHz
Power rating	120 W
Output voltage	500 ... 560 V DC

Subject to technical changes!

5.2 Device Drawing

Device drawing on next page

